

It is claimed:

1. A plasma source comprising:

a chamber, in which plasma is generated,  
a plate at a spacing from a wall of the chamber,  
with this plate comprising throughbores, through which gas can flow into a plasma volume,  
whereby this plate forms with the wall of the chamber a closed volume and a gas inlet is provided in this wall; wherein the plate is connected with the wall via an electric insulation and that an electric voltage source is provided between the plate and the wall.
2. The plasma source as claimed in claim 1, wherein the voltage source is a high-frequency voltage source.
3. The plasma source as claimed in claim 1, wherein an induction loop is provided in the chamber, the induction loop being disposed above the plate.
4. The plasma source as claimed in claim 3, wherein a device is provided which produces a static magnetic field in the volume encompassed by the induction loop.
5. The plasma source as claimed in claim 4, wherein the device is a coil.
6. The plasma source as claimed in claim 1, wherein the electric insulation is also a sealing.
7. The plasma source as claimed in claim 1, wherein the plate comprises approximately 52 throughbores with a diameter of approximately 1 mm disposed equidistantly.
8. The plasma source as claimed in claim 2, wherein the induction loop is electrically connected with the high-frequency voltage source.
9. The plasma source as claimed in claim 3, wherein the induction loop is electrically connected with the high-frequency voltage source.
10. A plasma source as claimed in claim 1, wherein the plate and the induction loop is connected with the one polarity of the high-frequency voltage source, while the chamber is connected with the other polarity of this high-frequency voltage source.

11. A plasma source as claimed in claim 2, wherein the plate and the induction loop is connected with the one polarity of the high-frequency voltage source, while the chamber is connected with the other polarity of this high-frequency voltage source.
12. A plasma source as claimed in claim 3, wherein the plate and the induction loop is connected with the one polarity of the high-frequency voltage source, while the chamber is connected with the other polarity of this high-frequency voltage source.
13. The plasma source as claimed in claim 1, wherein the plate is developed conically in top view.
14. The plasma source as claimed in claim 1, wherein it is disposed in the interior of a vacuum housing.
15. The plasma source as claimed in claim 1, wherein in the chamber a pressure  $p < 1$  Pa obtains.
16. The plasma source as claimed in claim 1, wherein the generated plasma is essentially an ion beam.
17. The plasma source as claimed in claim 1, wherein the wall of the chamber is the bottom.
18. The plasma source as claimed in claim 1, wherein the wall of the chamber is a side wall.
19. The plasma source as claimed in claim 3, wherein the induction loop comprises only one winding and is composed of a curved metal sheet.
20. The plasma source as claimed in claim 18, wherein the induction loop assumes the function of the plate and is provided with throughbores.
21. The plasma source as claimed in claim 19, wherein the induction loop assumes the function of the plate and is provided with throughbores.
22. The plasma source as claimed in claim 1, wherein the plate is an around disk.
23. The plasma source as claimed in claim 1, wherein the volume forms an ignition chamber between the plate and the wall, said ignition chamber being smaller than the plasma volume provided above the plate.
24. The plasma source as claimed in claim 23, wherein the pressure in the ignition chamber is greater than the pressure in the plasma volume .

25. The plasma source as claimed in claim 24, wherein the pressure in the ignition chamber is selected such that with typical gas flows the pressure is within the minimum of the Paschen curve.
26. The plasma source as claimed in claim 25, wherein the minimum is between 0,1 and 1 mbar.
27. The plasma source as claimed in claim 25, wherein the pressure can be adjusted by the cross-section and the number of the holes in the plate.